

is seen that the growth ratio between successive instars is approximately constant.

Grateful acknowledgement is made of a grant from the University Grants Commission to one of the authors (A.B.S.).

DEPARTMENT OF ZOOLOGY,  
MALABAR CHRISTIAN COLLEGE,  
CALICUT-1, KERALA,  
July 7, 1969.

A. B. SOANS  
J. S. SOANS

20. NEW RECORDS OF HYMENOPTEROUS PARASITES  
OF PEA LEAFMINER *PHYTOMYZA ATRICORNIS*  
MEIGEN (DIPTERA : AGROMYZIDAE)

The pea leafminer *Phytomyza atricornis* Meigen is the most common and widespread leafminer throughout the world. The larva of this pest is polyphagous and attacks a large number of plants belonging to several natural orders. According to Trehan & Sehgal (1963), the larva feeds indiscriminately on palisade and spongy mesenchymatous tissues but never consumes the entire tissues between the upper and lower epidermis and the endodermal cells containing starch are largely avoided. Ahmad & Gupta (1941), while studying the biology of this pest on pea, reared an Eulophid, *Solenotus* sp. from its larval stages. Narayanan *et al.* (1956) reared an ectoparasite *Solenotus* sp., an endoparasite, *Rhopalotus* sp. and an unidentified braconid on the larval stages of this host fly. Only recently Odak *et al.* (1968) have recorded *Opius* sp. (Braconidae) and *Neochrysocharis* sp. (Eulophidae) as parasites of *P. atricornis* from Gwalior (India). The present study was, therefore, undertaken to investigate parasites of this leafminer in the Ranchi area and leaves of pea (*Pisum sativum* Linn.) were collected. The following six hymenopterous insects emerged from the leafminers.

1. *Chrysocharis* sp. (Eulophidae)

Thompson (1943, 1954) has recorded *Chrysocharis* sp., *C. elongatus* and *C. syma* from New Zealand, Yugoslavia and England respectively, as parasites of this leafminer.

2. *Tetrastichus* sp. (Eulophidae).

3. *Cirrospilus* sp. (Eulophidae).

4. *Opius* sp. ? *phaseoli* Fischer (Braconidae).

5. *Opius* sp. ? *lantanae* Bridw. (Braconidae).

6. *Sphegigaster* sp. (Pteromalidae).

## ACKNOWLEDGEMENTS

My thanks are due to Sri Y. Sankaranarayanan, Director and Dr. A. Bhattacharya, Entomologist of the Institute, for encouragement. Thanks are also due to Sri B. P. Mehra, Scientific Officer of the Institute for constant help and going through the manuscript and to Mr. R. D. Eady, Commonwealth Institute of Entomology, London, for the identification of the parasites.

INDIAN LAC RESEARCH INSTITUTE,  
NAMKUM, RANCHI, BIHAR,  
May 20, 1970.

R. S. GOKULPURE

## REFERENCES

- AHMAD, T. & GUPTA, R. L. (1941): The pea leafminer *Phytomyza atricornis* (Meigen) in India. *Indian J. Ent.* 3: 37-49.
- NARAYANAN, E. S., SUBBA RAO, B. R. & KAUR, R. B. (1956): Studies on the biology of the parasites of the pea leafminer, *Phytomyza atricornis* (Meigen). *Proc. Indian Acad. Sci. (B)* 44: 137-147.
- ODAK, S. C., DHAMDHERE, S. V. & KAURAVA, A. S. (1968): New records of hymenopterous parasites of *Phytomyza atricornis* (Meigen), a serious pest of pea. *Indian J. Ent.* 30(3): 250.
- THOMPSON, W. R. (1943): A catalogue of the parasites and predators of insect pests. Parasites of the Dermaptera and Diptera. Sect. 1, Part 2. Commonwealth Institute of Biological Control: 60.
- THOMPSON, W. R. (1954): A catalogue of the parasites and predators of the insect pests. Hosts of hymenoptera (Galliceratid to Evaniid) Sect. 2, Part 3. *ibid.* 274.
- TREHAN, K. N. & SEHGAL, V. K. (1963): Range of host plants and larval feeding in *Phytomyza atricornis* Mg. (Diptera: Agromyzidae). *Entomologist's mon. Mag.* 99: 1-3.

21. CONTRIBUTION TO THE STUDY OF AQUATIC BEETLES  
—14. *COPELATUS NEELUMAE* SP. NOV. (DYTISCIDAE)  
FROM INDIA

(With a text-figure)

**Copelatus neelumae** sp. nov.

*Holotype*—♂, Tamilnadu: Ottokovil, Tiruchirapally District, from a tank near Uppada river, 13.iii.1971, K. V. Lakshminarayana coll. In the National Collections, Zoological Survey of India, Calcutta.  
Z.S.I. Regd. No.  $\frac{6052}{H4A}$ .

Length 5.4 mm. Breadth 2.8 mm.

*Head* rufo-ferruginous, slightly paler anteriorly; punctation on the disc quite dense, separated by its own diameter, irregular, more sparse anteriorly and towards the sides; surface distinctly microreticulate.